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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,614	01/02/2002	Kenji Takano	016887-1062	6004

7590

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EXAMINER

CHEN, SOPHIA S

ART UNIT

PAPER NUMBER

2852

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

10/032,614

Applicant(s)

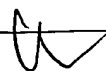
TAKANO, KENJI

Examiner

Sophia S. Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 April 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. Figure 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The abstract of the disclosure is objected to because of the inclusion of legal phraseology, such as "said" (page 18, lines 4, 6, 7, 9, 12, 14, and 15). Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

3. A series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim.

A claim which depends from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to any preceding independent claim. In general, applicant's sequence will not be changed. See MPEP § 608.01(n).

No correction is required at this time. At such time as this application may issue as a patent, the claims will be renumbered.

***Claim Rejections - 35 USC § 112***

4. Claims 2, 4-9, and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 is considered to be indefinite because there are no antecedent bases for "the circuit" (line 4) and "the power" (lines 4-5).

Claim 4 is considered to be indefinite because there is no antecedent basis for "the power" (lines 3-4).

Claim 5 is considered to be indefinite because there is no proper antecedent basis for "the power" (lines 4 and 6).

Claim 7 is considered to be indefinite because there is no proper antecedent basis for "the circuit" (line 3).

Claim 12 is considered to be indefinite because there is no antecedent basis for "the power" (lines 27 and 32) and "the circuit" (line 32).

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hinotani et al., JP 08-063022.

Hinotani et al. discloses an image forming apparatus comprising a pressing roller 11; a fixing roller 10 having a hollow portion, facing the pressing roller 11, rising in temperature by being heated, and fixing a developer to a sheet 14 by sandwiching the sheet between the fixing roller 10 and the pressing roller 11 (Figure 1); induction heating coils including a center-section coil 22b and an end-section coil 22a, and arranged inside the fixing roller 10 in an axial direction so as to leave a space between the center-section coil 22b and the end-section coil 22a (Figure 13); the temperature of one surface of the fixing roller 10, the one surface opposing the space, being not higher than the temperature of the other surface of the fixing roller 10, the other surface opposing central portions of the coils 22b (Figure 15 and abstract – inherently, because the abstract discloses the temperature distribution is uniformly along the rotation axis of the fixing roller even if a gap is installed between coils); the center-section coil and the end-section coil being simultaneously turned on and heated (Figures 7 and 8); and the end-section coil having a first coil 22a and a second coil 22d (Figure 13).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4-6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinotani et al. in view of Omoto et al., U.S. Pat. No. 6,463,252.

Hinotani et al., as discussed above, further discloses temperature monitor (a second thermistor) 16 (detecting the end portion of the fixing roller 10) and switch controller 37 (Figures 7 and 8). Hinotani et al. differs from the instant claimed invention in not disclosing a heating control section for independently controlling the turn-on or turn off of power to the center-section coil and the end-section coil; a first thermistor for detecting the surface temperature of the central portion of the fixing roller; and a capability of selecting the case where either of the center-section coil or the end-section coil being continuously heated and the case where both of the center-section coil and the end-section coil being heated at a constant duty ratio, in a warm-up mode, a standby/idle mode, and a printing mode.

Omoto et al. discloses an image forming apparatus comprising a pressing roller 4; a fixing roller 3; induction heating coils 26, 27, and 37 (Figure 9); a heating control section for independently controlling the turn-on or turn off of the power of the center-section coil 37 (via a main coil heating control section 35) and the end-section coil 26 or 27 (via a sub coil heating control section 25 or 39; Figure 9); a first thermistor S2 or S3 or detecting the surface temperature of the central portion of the fixing roller 3; a second thermistor S1 or S4 for detecting the surface temperature of one end portion of the fixing roller 3 (Figure 5(a)); the heating control of the center-section coil 37 being performed based on an output of the first thermistor S2 (Figures 6(a) and 6(c)); the heating control of the end-section coil 26 or 27 being performed based on an output of the second thermistor S1 or S4 (Figures 6(a) and 6(c)); and a capability of selecting the case where either of the center-section coil or the end-section coil being continuously

heated and the case where both of the center-section coil and the end-section coil being heated at a constant duty ratio, in a warm-up mode, a standby/idle mode, and a printing mode (column 11, lines 15-26).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the independent heating control section, plural thermistors, and capability of selecting the case as taught by Omoto et al. in place of the single heating control section and single thermistor of Hinotani et al. to further decrease the temperature unevenness in the circumferential direction of the fixing roller (Omoto et al.; column 2, lines 18-21) and be able to deal with cases of various modes (Omoto et al.; column 11, lines 15-26).

***Allowable Subject Matter***

9. Claims 2 and 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10. Claim 12 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

11. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not teach or suggest an image forming apparatus comprising overheating prevention devices being provided so as to oppose the center-section coil and the end-section coil, but not oppose the space between the center- and end-section coils.

***Other Prior Art***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Euler, U.S. Pat. No. 4,585,325, discloses an image forming apparatus comprising a pressing roller; a fixing roller; a first temperature sensing means; a second temperature sensing means; and a control system.

Kato et al., U.S. Pat. No. 5,526,103, discloses an image forming apparatus comprising a pressing roller; a fixing roller; induction heating coils including a center-section coil and an end-section coil, and arranged inside the fixing roller in an axial direction so as to leave a space between the center-section coil and the end-section coil; the center-section coil and the end-section coil being simultaneously turned on and heated; and the end-section coil having a first coil and a second coil.

Fromm et al., U.S. Pat. No. 5,754,917, discloses an image forming apparatus comprising a pressing roller; a fixing roller; an AC thermal cutoff being a circuit breaker or a fuse; a DC thermal cutoff being disposed in direct contact with the surface of the fixing roller, but in a position which is out of the width of a paper path over fixing roller; and a software thermistor.

Higaya et al., U.S. Pat. No. 6,292,648, discloses an image forming apparatus comprising a pressing roller; a fixing roller; a first temperature sensing means; and a second temperature sensing means.

Sakai et al., U.S. Pat. No. 6,336,027, discloses an image forming apparatus comprising a pressing roller; a fixing roller; an induction coils having a center-section



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coil and an end-section coil; and the center-section coil and end-section coil being independently controlled.

**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sophia S. Chen whose telephone number is (703) 308-7617. The examiner can normally be reached on M-F (7:00-3:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley can be reached on (703) 308-1373. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Sophia S. Chen  
Primary Examiner  
Art Unit 2852

SSC  
December 2, 2002